IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

n re Application of: Kucera, et al.

Docket No.: IR-2800(NBA) **Group Art Unit:**

1773

Serial No.: Filed:

09/627,312 July 27, 2000

Examiner:

M. R. Jackson

For:

"Two-Part Aqueous Metal Protection Treatment"

DECLARATION UNDER 37 CFR 1.132

Unequivocal Statement of Attribution of prior patent publications **Declarant**

Assistant Commissioner of Patents Washington, DC 20231

Dear Sir:

The purpose of the following declaration pursuant to 37 CFR 1.132 is to overcome rejections under 35 U.S.C. §§ 102 by disqualifying WO 99/37722 and WO 99/37713 as prior art against the above captioned pending application. Disqualification is on unequivocable grounds averred by the undersigned as inventor of the subject matter disclosed in WO/9937722 and WO 99/37713.

- I, the undersigned, Helmut W. Kucera, declare the following:
 - (1) that I am the inventor of pending App. No. 09/627,312 listed above, which has been assigned to Lord Corporation by assignment recorded on 10/23/2000 in the U.S. Patent Office on reel no. 011287 and frame number 0695, and have not assigned said patent to any other person; and
 - (2) That the attached record of invention, signed by me and witnessed, establishes that my conception and reduction to

practice occurred prior to the priority dates listed in WO 99/37722 and WO 99/37713 and therefore I am the inventor.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Signed:

Helmut W. Kucera

Dated:

$LORD^{ ext{ iny B}}$ Corporation

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INVENTION RECORD FORM

Page 1	of _	6	Patent Departi	ment Filing No. IR-	
Invention Title	e :	Autodeposited Me	etal Treatment	GROUP W Middle	CEIVED
Inventor(s):	1)	Kucera Last	Helmut First	W Middle	1700
	2)	Last	First	Middle	
	3)	Last	First	Middle	
Invention Disc	closur	e Prepared By:	Helmut W Kuce	era	
Date Of This l	Disclo	sure:			
Invention Firs	st Disc	closed To:	Rebecca Cowles		
Date First Dis	closed	l:			

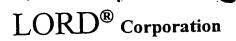
Signature	s: 11	//	Witnessed and Nat G Q	
Inventor:	Thelmut / hudra	Date::	Understood::	Date::
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Inventor:		Date::	Understood: Relucco S. Cowles	Date::
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Inventor:		Date::	Understood: The Carles	Date::
·			Form	#998. Rev. F 4/18/95

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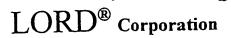
Page of6	Patent Department Filing No. IR-
Details Regarding Usage, Demonstration or Sale:	
Invention been either <u>offered</u> for sale or actually sold Is an offer contemplated? If yes to either, when and to whom?	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$
Invention been demonstrated to anyone outside Lord Is a demonstration contemplated? If yes to either, when, where, and to whom?	yes X no yes no
Invention described outside Lord (Paper, Speech, Letter Is a description contemplated? If yes to either, when, where, and to whom?	yes no X yes no X
Invention use outside of Lord (testing of prototypes)? Is a public use contemplated? If yes to either, when and where?	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
contract or subcontract and was not done uposubcontract would be awarded. Prior Documentation of Invention:	d to practice in the performance of a Government on the understanding in writing that a contract or
[1] Notebook 7671, 7789 Physical Embodiment and/or Testing of the Inventory of the Invento	
Signatures: Inventor:	Witnessed and Understood:: Witnessed and Understood:: Witnessed and Understood:: Witnessed and Understood:: Form #998. Rev. F 4/18/95



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Page		3_	_ of	6	Patent Department Filing No. IR-
If ye	s, gi	ve da	ate of	manufa	cture, synthesis, or formulation and date of testing or analysis:
	Begi ab.	nnin	g on J	uly 🔳	, to present, these metal treatments have been prepared and evaluated in our
Deta	ils c	of tes	ting, 1	manufa	cture, of formulation of prototypes or samples:
S	See a	apper	nded l	ab note	book pages for details
Gen	eral	Sta	temer	nt of the	e Invention:
· A	An a steel	utod , to b	eposi se use	table, si d in coi	ngle coat, no rinse metal treatment for electrochemically active metals such as nbination with phenolic based primers or coatings
Utili	ity:				
1	was	done	in th	e conte	atment to replace phosphatizing in specific applications. Although initial work ext of a minimum surface prep rubber-to-metal primer system, this technology is in other applications where phosphatizing, grit blasting or other metal used with the aim of improving adhesion and improving corrosion resistance.
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INVENTION RECORD FORM

Pag	ge <u>4</u>	of _	6	Patent Department Filing No. IR-
Re	lated Art:			
1.	Modern Pai	nt an	d Coat	tings April 1984, p 49 (Article on Phosphatizing)
2.	US 5,322,87	70		
3.	Z-169 "Cha Theodoroak		erizatio	on of Autophoretic Rubber-to-Metal Primer Systems" IPR No: 1. Athena
4.	WO 95/230	38		
5.	"Modern M Casidy	⁄letal:	s" Sep	ot 1988, p38 "Water based coating challenges electrodeposition" by V. M.
6.	"Product Fi	inishi	ing" Ju	uly issue
_			C A	1. T. southann

Detailed Description of the Invention:

Phosphatizing is a well established process for preparing many metals, particularly steel for subsequent coating or adhesive bonding operations¹ This is a complex, multistep process for converting a reactive steel surface to a complex phosphate coated surface. Such a surface not only provides a more consistent, well adhering base for a subsequent coating or adhesive operations, but also enhances the corrosion resistance of the final construction.

Thus phosphatized surfaces are the preferred substrates for R-M bonding. In combination with our phenolic based primers, such constructions have a history of excellent corrosion resistance, much superior to the primers alone on unphosphatized metal.

The drawback of this process is the complexity of the multistep phosphatizing process, which has to be closely monitored, and which can generate considerable waste products in the form of sludge¹.

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Inventor:	Helmed Kuda	Date::	Understood:: Witnessed and	1 4	ate::
Inventor:		Date::	Understood:: LLCCO Witnessed and	L. Cowles 0	ate::
Inventor:		Date::	Understood::	- Comment	ate::
ApprovaL::				✓ Form #99	98, Rev. F 4/18/95

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metal.

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This invention is a much simplified metal treatment consisting of a combination of the novel phenolic novolac dispersions disclosed in IR-2485 (CE), and phosphoric acid, applied directly on degreased only

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Select phenolic novolacs of this invention are infinitely water dilutable and have high acid tolerance, which allow for low solids, high phosphoric acid formulations which have shown the most promise for this application.
Such formulations, when dip applied onto an electrochemically reactive metal such as steel, have shown an unusual property we call "autodeposition". This process, similar in concept to Henkels "Autophoretic" coatings, deposits a very uniform, self limiting layer of the metal treatment as an aqueous gell.
The basis for this deposition is the reaction of the phosphoric acid with the metal to form iron ions which appears to cause the phenolic resin/phosphoric acid mixture to deposit on the metal a self limiting, very uniform, gellatinous, highly acidic wet film.
Subsequently, accelarated by further heating, the phosphoric acid in this water-gell is believed to further convert the surface to iron phosphate forming an interpenetrating network with the chelating phenolic resins of the composition. Once the film has dried, this electrochemical reaction is believed to stop.
It has been found that the same chemistry appears to occur when the metal treatment is spray applied from dilute aqueous systems onto hot metal.
Optionally, flexibilizing polymers can be incorporated into these compositions, as well as other beneficial metal chelators or corrosion inhibitors. Since this metal treatment does not contain any formaldehyde curative (latent or otherwise) for the phenolic component, it is typically used in combination with a phenolic coating/primer which provides the necessary curatives by diffusion into the metal treatment during the cure of the coating/primer.
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Inventor: Witnessed and Witnes
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Approval.:

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bonded areas or of exposed coatings.

coating/primer from its rheology.

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This combination of metal treatment and a phenolic coating/primer has been shown to be capable of providing enhanced corrosion protection similar to the multistep phosphatizing process both under

A second benefit of this metal treatment is that it can activate a metal surface towards autodeposition of a coating or primer based on the novel phenolic dispersions IR-2487 (CE). Such an autodeposition step enhances the control of the primer/coating deposition by substantially uncoupling the deposition of the

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thoug the metal to presents a substant	ial simplificatio	n of the conve	ntional phosph	atizing process	5.	
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